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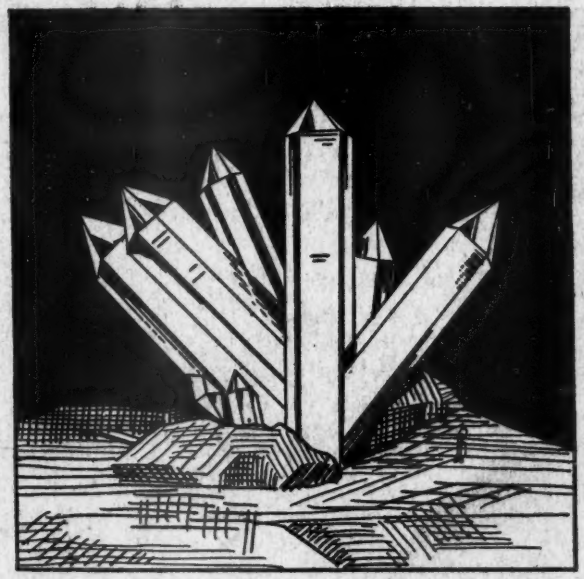
VOL. 9, NO. 4 WHOLE NO. 34

ROCKS AND MINERALS

A Magazine For Mineralogist, Geologist & Collector



OFFICIAL JOURNAL OF

THE ROCKS AND MINERALS ASSOCIATION

PUBLISHED MONTHLY

APRIL 1934

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Forms for the May issue will close April 15th.

WANTED: Correspondents in all parts of the world who will be kind enough to send us notes and news items on minerals, that they think may be interesting to the subscribers of ROCKS and MINERALS. Such as are available we shall be very glad to print in the magazine.

ROCKS and MINERALS

A MAGAZINE FOR MINERALOGIST, GEOLOGIST AND COLLECTOR

PUBLISHED MONTHLY --- FOUNDED 1926

Volume 9, No. 4 **Whole Number 34**

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ROCKS AND MINERALS PEEKSKILL, N. Y., U. S. A.

The Official Journal of the Rocks and Minerals Association

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Shells
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ROCKS and MINERALS

Edited and Published by Peter Zodac

PUBLISHED MONTHLY

The Official Journal *of the* Rocks and Minerals Association

APRIL 1934

VOL. 9, NO. 4

WHOLE NO. 34

TOPAZ IN THE TARRYALL MOUNTAINS OF COLORADO

By WILLARD W. WULFF

1225 E. Platte Avenue Colorado Springs, Colorado

Topaz have been found in their various forms and colors in many localities in the state of Colorado. Most of these localities were discovered and worked many years ago by some of the prospectors who came west in search of that precious metal, GOLD.

The first topaz was found in 1880* by one of these prospectors, a man by the name of Thiebaud, near Specimen Rock in Bear Creek Canyon just south of Colorado City. Incidentally, some fine phenacites were found at the same time. Soon after, a crystal of topaz was found near the town of Florissant. This was a fragment of a large crystal supposed to be from ten to twelve inches in diameter. Other localities were later worked and supposedly exhausted, then forgotten, and for a period of many years, from about 1900 to 1925, not many topaz were found. Probably some were picked up that were never reported, and these were undoubedly found by chance.

Of course, most of those early-day prospectors have passed on, and with them went the locations of many of the topaz diggings. One of my friends, Mr. George White, and I have collected for ten years, during which time we have had many fine trips together and have discovered some beautiful minerals in the mountains. It was always our ambition to find a topaz locality, and we made many trips trying to run down clews that we thought were "hot," but each time we came back with a knapsack full of nothing more than quartz crystals. microcline, fluorite and orthoclase. However, some of these were very beautiful, and at the present time occupy important places in our cabinets. It seemed that every time we thought we had something located for sure, it would turn out to be worthless as far as topaz were concerned.

We finally learned the name of a prospector who had worked a place in the Tarryall mountains north of Lake George, Colorado, where we understood he had taken out many fine specimens years before. Having already had so many disappointments of this kind, we were inclined to treat this tip rather lightly, but decided to try it again as we were determined to find some topaz if possible.

We made a trip up to Florissant, 36 miles west of Colorado Springs, to try to locate this man whose name was Mr. Reeser, and who, as we found out later, married a daughter of Mr. Thiebaud, previously mentioned in this article. After some trouble, we found him, introduced ourselves and told him what we wanted. He was a very fine old man, glad to assist us in any way he could, and said he would try to go with us. So we set a date with him to go to the place he had worked 20

*American Journal of Science, October 1882, Page 282.

years before. This was in the summer of 1929.

The next Sunday, George and I left Colorado Springs at 6 A. M. and picked up Reeser at Florissant. Without waste of time we proceeded five miles to Lake George, then north through the town of Tarryall. which is the remains of an early-day, short-lived, gold camp, to a point about three miles beyond. Here we parked the Model T and started on a two mile hike into the Tarryall mountains, the last leg of a hopeful journey. The first thing to do now was to get Reeser across the river, which was nothing more than a wide, fast mountain stream, but he, being around 80, was not quite as spry and sure-footed as George and myself.. After making a series of stepping stones out of large granite boulders, we got across without getting wet. We took it quite slowly as the going was rough and uphill most of the way, but in spite of his age, the old prospector was no "slouch" when it came to hiking the hills. Then, topping a ridge, Reeser stopped and informed us that things didn't look natural to him. George and I had another of those sinking feelings, but our guide finally decided that after twenty years, there was bound to be a lot of changes in the landscape, and as near as he could remember, he uncovered some fine topaz under "that large pine tree," pointing to it some 150 yards ahead of us. We hurriedly made our way to it and sure enough, there were his old diggings of twenty years ago, covered with brush and partially filled with dried pine needles. The ground was literally covered with fragments of feldspar, smoky and clear quartz, for this was the remains of an old weathered pegmatite. We lost no time getting started digging. It took us some time to clear out the brush and pine needles, but finally we got down to the soil. Then taking each shovelful of dirt, we carefully strained it hrough our fingers. Suddenly, George picked out a fine topaz crystal, nearly perfect and very brilliant, clear and slightly bluish in color. This put new life into us—we had finally found a locality for topaz.

But, alas, what if we should find no more! Besides, I had not yet picked one up for myself. However, I had not long to wait for I soon found a very beautiful crystal of gem quality, about one inch long, equally as fine as the first one and identical in color. This went on until noon when we had found several fine topaz crystals and many fragments, along with a few beautiful smoky quartz crystals. Someone suggested we eat our lunch, so a little time out was taken. Finishing my sandwiches before the others, I decided to take a little stroll farther around the ridge, and a little higher up. I hadn't been gone ten minutes when I stumbled on to a weathered pegmatite that had never before been touched—real virgin ground. Getting down on "all-fours," I began a search and immediately picked up several small topaz crystals. Before I got up I had obtained twenty fine specimens. Boy! That is a thrill that comes once in a lifetime. I announced my find to my companions, and the three of us went back and made a thorough search of that old pegmatite dike, getting about fifteen more excellent crystals without a bit of digging. Two or three were in combination with smoky quartz and orthoclase crystals. We were sure now that we had a fine topaz locality, and all the thanks and credit went to George Reeser, the old prospector, for enabling us to rediscover this rich deposit.

We left our new find late in the afternoon, leaving Reeser at Florissant and driving on home, two mighty happy collectors. When we got home we washed and cleaned up our specimens, and we did have some beauties—about forty in all, including those that Reeser had found, and probably a hundred fragments.

It might be well at this point to give a description of these crystals. They occur in medium coarse-grained pegmatite dikes. which in turn are found as intrusions in granite. The topaz are associated with smoky quartz, clear quartz, orthoclase, a little biotite, muscovite and some hematite. Upon exposure to the elements and thousands upon thousands of years of erosion, the pegmatites are disintegrated, exposing the crystals. This makes it easy to pick the specimens up off the surface, once the place is located, but to try to dig into the solid pegmatite is almost useless, as few crystals can be recovered. The specimens from this particular locality are prismatic crystals, ranging from ⅛ of an inch to an inch in length, with diameters approxi-

mately ¾ of their length, terminated on one end only, by domes, which are sometimes slightly modified. A perfect basal cleavage is present and in some a distinctive conchoidal fracture is to be seen. The red stain of iron has followed into the fracture, giving the appearance of red inclusions. Very few of the crystals are free of this as there must have been some tremendous earth pressure causing the cracking. With the exception of this, most of them are colorless with a slight suggestion of a bluish tinge. All the crystals are vertically striated and in most cases each crystal has two or three prismatic faces highly etched. This is also the case with the termination faces, but these termination etchings are not quite as plentiful and are of an altogether different shape and character. The cause of this will not be taken up in this article. These peculiarities seem to be a distinctive characteristic of the topaz from this region. Although most of them are found loose, I have secured two or three fair ones on a quartz matrix, but these are usually of poorer quality.

When displaying my collection, these topaz specimens are the ones that I like to show best of all, because they are not extremely common in Colorado, because we had such a hard time finding a collecting locality, and lastly because they are so beautiful. We have made several trips back there and never fail to find a few specimens each time, although they are far from being as plentiful as they were on that first trip we made.

While this article has to do primarily with the Tarryall topaz, I will mention a few of the other collecting localiting in the state. Perhaps some of these will be taken up in detail at a later date. Nathrop, Colorado, about one hundred miles in the mountains west of Colorado Springs, is perhaps one of the best known localities. Here the little gems occur in small cavities in a volcanic rhyolite, known as Ruby Mountain. In the cavities are found beautiful little topaz crystals, alone, in combination with brilliant little red garnet crystals, or only the garnets may be found. The crystals of both minerals are never found to be of any great size, ranging from microscopic to about ¼ of an inch. The most outstanding features of these specimens are their brilliancy and perfect crystallization.

Clyde, south of Pikes Peak, has produced three specimens, one a perfect, colorless crystal with perhaps a slight suggestion of blue, about ¾ of an inch in length and of gem quality. This is in my possession, and the other two, which are cleavages, are in White's collection. We found these one day by accident while looking for smoky quartz and microcline crystals.

The Gem Mines district north of Florissant has produced many fine specimens, and I have a few of these in my collection. These crystals are very similar to those of the Tarryall country, having about the same size range and similar crystallization. The outer appearance seems to be a little different as they are not as brilliant and have more or less frosty looking surfaces, but the interior is just as good gem quality as those from the Tarryall, and in some cases much better.

Then, of course, there is the Devil's Head locality west of Sedalia, which is well known and has produced many fine gem stones. Most of these are of a larger crystallization, sometimes attaining a length of three to four inches or even greater A very beautiful specimen from there is on display in the State Museum in Denver.

The slopes of Pikes Peak and Cheyenne Mountain have given up a few, but cannot be classed as good collecting localities.

Of the hundreds of different minerals that can be found in Colorado, I believe I am more fascinated by the collecting of topaz than any of the others, and I hope soon to locate new collecting grounds for these fine gems.

The Editor of ROCKS and MINERALS will be very glad to meet his readers and friends who may attend the Greater New York Hobby Show, April 25th to 30th. Call at Booth No. 15.

THE KAU DESERT
HAWAII NATIONAL PARK

By WENDELL O. STEWART

The island of Hawaii has the largest area (4,015 sq. mi.) of all the eight islands composing the Hawaiian group. It is built up entirely of volcanic rock, having been raised gradually by successive lava flows from a depth of 18,000 ft. on the ocean bottom to the present altitude of 13,825 ft. above sea level. It is the youngest island in the group and the only one containing active volcanoes.

During the past summer, an instructor in botany at the University of Hawaii, and the writer, thoroughly explored this island, using an automobile and camping outfit, and walking where there were no roads We found that the Kau Desert offered the most to the person interested in rocks and minerals.

The Kau Desert is located southeast of Kilauea Volcano in Hawaii National Park. It extends from the volcano to the ocean, twenty-five miles away, and is composed of lava flows from the frequent active outbursts of Kilauea Volcano and Mauna Loa Volcano. It slopes gently from 4000 ft. in altitude at Kilauea Volcano to the ocean. Its color is black, grey, and blue, unrelieved by vegetation or water. The rainfall at the Volcano House at Kilauea is 200 inches a year while down on the leeward slope in the Kau Desert nine miles away only nine inches fall during the year.

The lave of the desert is mostly "pahoehoe" (heavy basalt lava) and "a-a" (slag, sponge-like rock from which the pahoehoe has been melted out). Very little weathering has taken place.

In company with a ranger from the park we drove nine miles along the edge of the desert from Kilauea Volcano and left the car. Taking food and water with us, we plunged into the desert of rough lava, wearing boots well fortified with hob-nails. We headed toward Mauna Iki cone, last active in 1920.

We soon arrived in an area covered with volcanic tuff in layered beds, sorted out according to size as the material fell from the explosions of Kilauea Volcano and was blown by the wind. In dry stream beds the tuff was also deposited in more or less sorted layered beds. In other places finer material had formed ash beds. Lapilli from the size of a pea up to that of a walnut were found in thick beds. Bombs from two inches to six inches in diameter were scattered about. There were three general types of these bombs, round, spindle, and ribbon shaped.

There were mounds of iridescent "a-a" lava, a foam made of innumerable minute air cells. There were dragons or snouts of ropey iridescent "a-a" lava hardened as they flowed along. This lava sparkles red, purple, blue, and black in the sun and is also called "satin lava." We crossed tunnels, through which fiery streams of lava had flowed, leaving fantastic stalactites hanging from their ceilings

We found "Pele's hair" in mats an inch thick caught on the ragged edges of rocks and in the bottom of dry stream beds, covered by ash which had to be sifted out of the hair before its true nature could be seen. The hair or spun glass is light brown in color, is delicate and brittle. It was formed from the drops of thin molton lava as they fell from the spatter fountains in Kilauea Volvano and were blown into fine threads which drifted along on the trade winds.

In 1790 Kilauea exploded violently throwing out steam and ashes which were combined in falling to form spherical balls of mud. These fell into the soft ash beds of the Kau Desert and hardened and were covereed by additional layers of ash. We found solid beds of these marble-like mudballs. When cracked open, many were found to be made up of concentric layers of mud, showing the successive addition of mud as the drops were swept through the air by the successive blasts of the volcano. They have been called mud, pseudomorphic after

rain drops, an origin which sounds impossible, but which is explained by the peculiar conditions of ash, dust, steam, and heat existing during a volcanic eruption.

This same explosion and earthquake occuring in 1790 caught eighty Hawaiian men, women, and children in the center of the Kau Desert. The dense fall of ash and cinders and probable darkness caused instant confusion and the party of distracted people milled around in all directions trying to escape, and it is believed that most of the party perished. Strangely, due again to the peculiar condition of the eruption, their footprints were preserved in the hardened mud and ashes. These were discovered in 1920. Most of the prints point toward the ocean, southeast, away from the volcano. Many prints show the pattern of the sandals worn by the terrified Hawaiians, and in one place the print of a toe and knee indicated where a native stumbled and fell on one knee. As the soft ash weathered off the top of these footprints, models were made of them and placed in the Hawaii National Park Museum for further study. Fresh prints are being discovered after every rainstorm or severe wind. From the measurements of all the exposed prints, it has been determined that eighty peope were in the band.

At Mauna Iki, a small cone which erupted in 1920, we found a crevice on the side which was still emiting gases. A stick an inch in diameter caught fire in three minutes when held down in the hole.

Around the lips of the cone were piles of iridescent black drops of spatter lava, so smooth and bright that they appeared to have been polished and varnished.

The whole desert region was cut up by earthquake cracks, extending in parallel lines toward the southeast, in the direction of the lava flow to the ocean.

Because of the warm climate and the slow rate of hardening the lava does not form obsidian in this region. Columnar basalt along the seashore, where the flows meet the colder water, is the hardest and most dense type of igneous rock we found.

MINERAL HILL TODAY

By LOUIS MOYD

Delaware County, Pa., and especially Mineral Hill, is frequently mentioned in Dana's books as the source of many minerals, rare and common. However all of these old localities have been abandoned and are no longer worked for their rocks or minerals. Mineral Hill, a cluster of various types of old workings, is an example of this general abandonment. The dumps of the corundum mine have long since been plowed into a field, the feldspar openings are overgrown with weeds and trees, and the serpentine quarries are decomposing to a powder.

However there are still good specimens to be found in this vicinity. Excellent sunstone cleavages can be found in a feldspar pit along the stream between Mineral Hill and Black Horse Hill. In a storm sewer opening along the Baltimore Pike, a large rock of very good bladed actinolite has been recently found. Along the stream there is a feldspar outcrop in which a great many moonstone cleavages are present, some of which make good specimens.

In the largest of the serpentine quarries, many specimens of deweylite, suitable for polishing may be found easily. Recently, a Philadelphia mineralogist found a very good group of amazonstone crystals in one of the creek beds on the hill. Boulders of enstatite are common everywhere in the vicinity as also are masses of stalactic chalcedony, covered with drusy quartz. Lennilite, of the interesting group, vermiculite, is also very common, especially along the creek bed.

Many of the collectors that visit the locality spend some time in panning the stream bed for the small well-formed chromite crystals present.

While this account probably overlooked many of the minerals to be found at Mineral Hill, it is clear that a trip to this locality would be well spent.

ROCK AND MINERAL COLLECTING AS A HOBBY

Recently Presented by the Y. M. C. A. of Birmingham, Ala., over Radio Station WAPI

Many people believe that a rock is about the most lifeless object in the world. However, anyone who has taken the time to study the rocks cannot agree with this conclusion; because in them is written, for those trained to read it, the marvelous story of the earth's formation. Did you ever feel curious to know more about the way in which our own mountains came into existence? Under what conditions was our iron ore formed? What is the hidden story in our great coal fields? Well, the answers are waiting for you if you will go to the mountains and study specimens of the rocks you find there.

Thousands of people of all ages and all walks of life use this helpful, educational hobby as a means of escaping the cares of this busy world. It is an outdoor hobby. A boy who expects to follow any line of scientific work can have no other hobby that will furnish such useful training as will mineral collecting.

Minerals are really the "flowers of the rocks." These delicately fashioned, perfect geometrical solids offer the world's finest examples of symmetry and beauty. Most of us cannot collect diamonds emeralds and rubies but any one of you can easily obtain beautiful specimens, although their value may not equal these rare gems. Fine specimens of magnetite, chert, quartz, dolomite, pyrolusite, calcite, sandstone cyanite, muscovite and many others are available in Alabama. And there are hundreds of people throughout the United States who are eager to exchange specimens from their respective sections of the country for rocks, fossils and minerals from your own home area. Can you think of any greater opportunity to become acquainted with your own United States, or any more prized possession than a collection of mineral specimens from all parts of the world? It is not an expensive hobby unless you make it so, but the returns you will realize from valuable hours spent in studying and organizing your collection will be a treasure beyond estimate. And from the study of these nuggets of nature's glory what can you expect to learn? In these minerals lie hidden the most highly organized chemical laboratories you can imagine Here are the ores of iron, of copper of zinc and lead, and of aluminum—the very essence of our industrial world. In mineral crystals you will find every step from simple arithmetic to the most complex mathmatics. Under the argon light you may see reflected from certain minerals beautiful rays of light that normally vibrate too fast for the unaided eye to see.

I know a man who from the days of his boyhood had this hobby of collecting minerals and rocks and by exchanging with collectors all over the world, he assembled a most remarkable collection. At the time of his death these collections were valued at several thousands of dollars, while he had spent very little money for specimens. I do not mean to say that we should collect these specimens with the idea of disposing of them for profit, although this is more possible than you may think; but what I believe should be a worthwhile incentive is the love of the outdoors and the enjoyment of nature in one of its most delightful forms.

Perhaps some of you would like to know how to go about obtaining an inexpensive collection of rocks and minerals. First, obtain some sort of drawer space to house the collection; because a large part of the joy in collecting is in the organization, labeling and classifying. Second, provide yourself with some shallow homemade cardboard boxes. Pasteboard shoeboxes may be easily converted into the necessary type and by lining them with black or white paper they make a very attractive background for most specimens. Third, collect any kind of rock or mineral you can find in your vicinity. There are many available near Birmingham. With a hammer knock off all the outer discolored, weathered portion and save a piece of the fresh material about 1 by 2 by 3 inches. Save several duplicates for ex-

change material. Place each specimen immediately in a paper bag and write the locality where found clearly on the bag. This is important. Fourth, keep one specimen of each kind for your own collection and carefully store your duplicates. Opportunities for exchange will come as soon as you begin to look for them, but you must have your own material well organized to facilitate accurate handling. Never allow a specimen to become detached from its location label because it is then of no collection value. Any such material should be used only for laboratory experimentation. Finally, study, name, classify and neatly label your specimens. Elementary books are available at modest sums that will enable you to do this without previous training. When your supplies will permit, you are ready to begin exchanging. Numerous magazines carry advertisments of those wishing to exchange. And, of course, your friends are always glad to exchange specimens. I would feel complimented to have such an opportunity.

So, if you want an inexpensive, healthful, educational hobby, I suggest you try rock and mineral collecting. Without being conscious of the change you will become skilled and accurate in observation and you will develop the power to reason and think logically. Such training will develop in you an ability for critical observation and impartial judgment and what is probably of greater importance you will not only cultivate your imagine but you will learn how to direct it.

The Amateur Lapidary

Conducted by J. H. HOWARD*

504 Crescent Ave., Greenville, S. C.

Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all.

*Author of—*The Working of Semi-Precious Stones.* A practical guide-book written in non-technical language for those who desire to cut and polish semi-precious stones.

BUYING GEM MATERIAL

Did you ever stop to think that you often spend a dollar's worth of time and several cents worth of abrasive, electric current etc., in cutting and polishing less than a penny's worth of material? And if you have thought of it have you gone one step farther and realized that while this system may save a dollar occasionally it can never produce a well balanced collection?

This train of thought was instigated by R. Edward Fauser, Denio, Ore., who sends a comment that is worth passing along. Mr. Fauser is specializing in Virgin Valley Opals. This writer had suggested to Mr. Fauser that many amateurs had more ambition than money and that many of them would be glad to increase their opal stock if the cost was not too high and that many could not pay the price that is asked for good Opals and must be content with cheaper material. Mr. Fauser agreed but left this thought, "Doesn't the amateur often err in buying too much cheap material?" Shouldn't he in many cases pay a little more for his material and have really worthwhile gems, gems with intrinsic value, when he has put his work on them?

The point is well taken. Mr. Fauser has Opal at all prices from the highest to the lowest and the quality varies just as much as the price. His plea is that the beginner be willing to buy at least a few pieces of good material for only in this way can his collection be the source of pride that his labor deserves. The observation of course applies to all other kinds of gem material as forcibly as to Opal.

(Continued on Page 54)

1933-1934

April Bulletin — First Year Program

Mineralogy Club Movement for the Youths of the Secondary Schools of America

Nothing so encourages us as to hear that the plans which we are offering for Club Work among the young people of Secondary School age are proving of some definite value to those for which they are intended. We quote from two letters received this month from widely separated parts of the country, which we think illustrates well the spirit in which our efforts are being received The first reads as follows:

"The Children's Museum of Hartford has for some time sponsored a Junior Mineral Club, meeting during the summer vacation period, and studying mineralogy Several field trips were also taken to nearby quarries. . . . .

The program outlined in "Rocks and Minerals" seems a splendid way of enlarging the field which we hope to cover, and I am writing you to obtain details about the organization of local and national chapters . . . . .

If you would be so kind as to send us any information on the organization of these chapters, the Museum would be most grateful. We are all happy that "Rocks and Minerals" has become a monthly magazine. The museum has enjoyed using the publication in its activities with boys and girls, and this latest plan seems very workable."

This is a portion of a letter received recently from Miss Jane Burger, Curator of Education of the Children's Museum of Hartford, Connecticut, who is a warm friend of "Rocks and Minerals."

Mr. Albert M. Capron of the Western State College of Colorado writes in part:

"We have thought the matter over, and have talked to a number of people and students about starting a National Mineral Club. The young people have shown considerable interest, so we have decided to start this semester off with a mineral club. I am enclosing two dollars and a half to cover the National membership fee for the first ten members. We are anxious to be the first Mineral Club in Colorado, to be organized under the National Charter.

The high school here offers activity credit for club work. The students have to have some activity credits in order to graduate; so I find that this club is going to meet a **real need** for some of the boys who are not interested in band, orchestra, glee clubs, or some other like activity. . . .

From the standpoint of Geology and Mineralogy this region offers nearly everything one could ask for. We have geological formations from the pre-cambrian to the present, and great variety of ores and rocks. Gold, silver, copper, lead, maganese and molybdenum are quite common."

We congratulate Mr. Capron upon his good fortune in residing near this splendid field of operation. What a grand opportunity this must afford for doing some excellent field work in both geology and mineralogy! We also congratulate him upon being the organizer of the first National Club in the State of Colorado, and upon having his name entered in the list of our first twenty-five Pioneer Sponsors, as we have decided to designate those sponsors who are so nobly assisting us in the pioneering of this fine movement during its first critical year.

Since this movement portends so much in future helpfulness and value for the Youths of America by directing them in the proper use and employment of their leisure time, we feel that we cannot urge too strongly upon those who are qualified to become leaders, the wonderful opportunity they have to serve not only the young people of their own community, but the cause of mineralogy as well, if they will but co-operate and identify themselves with us in this work. At

the same time, their efforts along this line cannot but help to add new interest and zest to life, and it will do much, we are sure, to snap one out of the feeling that, perhaps, he has fallen into a deep rut. Let us begin at once to lay our plans for next year's work. Organize your Club this spring, so that you will be all set and ready to go when school starts in the fall.

In the March issue, we promised that this month we would make some suggestions relative to the accessioning, labeling, and housing of mineral collections. Obviously, we cannot even hope to outline, not alone to do justice to the various problems involved in this part of the work, in the space allotted, so therefore, mimeographed "Bulletins of Information" have been prepared giving more satisfactory and complete details of the various subjects than would otherwise be possible. These will be furnished free upon request to National Club Sponsors, and to others upon receipt of stamps to cover cost of postage (10c), by the National Director, Program Building and Research Ben Hur Wilson, 112 Mississippi Avenue, Joliet, Ill.

In Bulletin No. 1, is to be found the complete "Directions for making standard sized pasteboard trays for containing individual mineral specimens in cabinet drawers." Bulletin No. 2, gives "Directions for making labels for minerals kept in pasteboard trays." No. 3 contains, "Suggestions for accessioning and cataloging the Mineral Collection," and No. 4 is devoted to the subject of the "Making of standard sized drawers and cabinets for housing Mineral Collections" Please feel free to write us for these very helpful Bulletins.

Program Outline: Continued from the March Issue

The Fifteenth Club Meeting

Local Program: A Work and Social Hour Meeting

As suggested and planned at the Fourteenth meeting of the Club, this evening may be very profitably spent by the members in learning to do with their own hands some of the things which are necessary to properly house and otherwise care for their own collection of minerals. This will include the marking of the specimens and the accessioning of the same; the making of individual trays and labels; as well as the drawers and cabinets required for containing the trays.

It would be well for each member to bring and exhibit samples of his previous efforts along this line, so that they may be compared with the work of others, and that the good points of each may be shown and discussed. In so far as is possible, the work of each club should, within limits, be so standardized as to facilitate the easy interchange of materials between its own members. The advantages of such an arrangement must be perfectly obvious to all. Care should be taken, however, that this standardization is not carried to the point where individuality will be destroyed.

Respecting the actual work of the evening, little need be said, as this matter can well be left to the local committees who can determine what work shall be undertaken, and arrange the plans for carrying out the "work program." A part of the time at least should be spent in making pasteboard trays, (directions for which may be obtained from the National Director, Program Building and Research). Those who are in charge should practice the process before the meeting, so that they can instruct all those present in the best methods to pursue, and thus steer them clear of many pitfalls and mistakes. Material for several hundred 2"x3" "Standard" sized trays should be secured by the committee in advance, and the finished trays should be divided equally, at the close of the meeting, among all those who were present.

Sixteenth Club Meeting

National Program: Business Meeting and Study Hour

Program: Part I. Business Meeting

After the "Roll Call," and the "Reading of the Minutes," of the last meeting of the Club, the consideration of "Old Business" should be taken up. Now that the "First Club Year" is drawing to an end, it will be well for the members to look back over the year and review the work done so far, in order that the various projects under way may be rounded out and brought to a creditable close. A report of the Club Project Committee should therefore be had this time and careful attention should be given to the same. The annual prize (a fine Fluorescence cabinet) which is to be awarded to

the Club securing the largest number of subscriptions to "ROCKS and MINERALS" magazine should not be lost sight of. This is a splendid prize, worth working hard for. All Club members, if financially possible, should be individual subscribers to our Magazine. They should also go out and induce their friends to subscribe, for in so doing, they will not only bring into their home more than a dollars worth of real pleasure every month in the year, for the price of a single $1.00, but they will also be giving our Founder a boost which we are sure he will appreciate very much. This will not be hard to do, and we feel sure that every club member can easily find several persons who are only waiting to be asked to subscribe.

Part II: The Study Hour

Program Basis: Study of the Mineral Quartz

1. Remarks by the Sponsor.

2. Reading of "Article of Interest to Mineralogists." Topic:—"Agate-Archaeology and Folk-lore." From publication of the Field Museum of Natural History, Chicago.*

3. Reading of "Paper Prepared by Member." Subject: "The Importance of Quartz as an Economic Mineral." (Award Paper National Unified Program Topic).

4. Demonstration by sponsor or visitor. Aim: An understanding of the physical properties of the Mineral Quartz. An outline description of the various Branches of the Quartz family should be presented, with a brief discussion of each family. Special attention should be given to the subject of the crystal form of Quartz, as this example may well serve as the members' first introduction to the subject of Crystallography, which is to be taken up more extensively in work of the Second Year Program.

5. Discussion of points brought out in the Program, and the answering of Question Box Queries.

6. Adjournment.

Programs to be continued in the May issue.

*This very comprehensive and beautifully illustrated Booklet No. 8, on "Agate" may be obtained for 50c, by addressing the Museum. A copy of it should be in the library of every true lover of minerals, as the colored plates alone are worth the price of the Booklet.

Club Note:—For the Seventeenth meeting of the Club, the members should plan to join with the National Outing of the "Rocks and Minerals Association," which is to be held this year on Sunday, May 20. If on account of distance it should be impossible for the Club to attend the regular meeting planned for by their State Director of Outings, then the Club should arrange for a special outing of their own, on this day, inviting all their families and friends to accompany them. An all day picnic, to some spot where minerals can be studied and collected, should be held. Watch for announcement of further plans in the May issue. B.H.W.

THE AMATEUR LAPIDARY—(*Continued from Page* 51)

I know right now what the comeback of a great many of you is going to be, "I would like to buy some good material but where can I get it?" I wish I could tell you There are many items I would be glad to have and don't know where to get them.

I am not trying to sell advertising for ROCKS and MINERALS. But a good many of our troubles would be solved if readers would use the Classified Ads. to list material of which they have a surplus, bearing in mind that their surplus is exactly what someone else wants and doesn't know where to get. Such ads. do not cost much. They are almost sure to bring in enough to pay for themselves and will help the amateur to establish many interesting contacts and desirable materials you may have, will in that way be distributed where they are wanted and bring much pleasure to others.

For example, I happen to know that Alvan Barrus has some excellent Rhodonite, that Harry McNelly usually has or can get good Prehnite, that L. E. Bowser has Sweetwater Moss Agates, that John McCorkle keeps a wide variety of Desert Materials, that John M. Greiger usually has Kunzite and Tourmaline, that J. Lewis Renton

has Polka Dot Quartz and Rainbow Agate. And so forth. In addition to moving some material for cash, many interesting exchanges can be arranged in this way .

If you have anything that is good and that you do not want try this means of getting it into the hands of someone who does want it.

HINTS

Shively at Roslyn, So. Dak., finds that two pie tins soldered together face to face make an excellent mud guard or splash guard. The idea sounds good. And while browsing in the kitchenware department of the Ten Cent Store keep an eye open for the many sizes and shapes of rectangular pans often found there. With a reasonable amount of ingenuity, any kind of reservoir or guard that can be thought of may be readily built of combinations of these stock pans offered at five to ten cents each.

Shively also finds that wire nails make good lapsticks. He drills a series of holes in a wood board and in these holes he sets the nails loosely, heads up. He puts the cement on the heads of the nails then heats the nails and the stones and presses them together and he says they stay "put". Which is what is wanted.

Did you get that copy of "Gemmology" from the Gemological Institute? I find mine more and more valuable as time goes on. So many things in it that are not found elsewhere.

Will you amateurs send in your names for the Directory or are you ashamed of your hobby? Or do you know something that you are afraid of having to tell to some other fellow? What's holding you back?

Our Junior Club

Conducted by
ILSIEN NATHALIE GAYLORD

Dear Juniors:

April showers, and all the past months of freezing and thawing weather has pushed the rocks up from the soil, and cracked and crumbled many of them into pieces, and washed them down into the creeks and other streams. There they are waiting for us to come and find them. If you are not yet used to searching the fields and stream beds and banks for specimens, you will be amazed at all the different kinds you can find there.

One of our Club members, Albert Kidwell, of Missouri, writes that he has about one hundred and seventy-five specimens in his collection. The best one is a two inch agate that he found on their farm. There are no rock outcroppings within six miles of him, he says, so he has to do all his collecting in ravine beds. He is fifteen years old.

So you see what the April rains do for us, washing out the rocks from the soil and dropping them along the streams and valleys to help us with our collections. Now with a hearty invitation to any Junior anywhere to join Our Junior Club and share our good times with us, we will turn to our Club lesson for today.

CLAY AND RUBIES

Irritating, indeed, is this sticky Spring clay that clings to our shoes and clogs our steps. But that same clay has some most amazing secrets stored away within it. We will let it tell us its story.

In the beginning it was not clay at all. It was a quantity of small pink grains like those we scratched in the little granite rock in our February lesson. That was feldspar. It is very abundant in the granite rocks. But pink feldspar is not the only color there is. Some of it is gray, and some is light yellow, red, or green.

There are various kinds of feldspar too, although this in our little granite

rock is the most common, and is a potash feldspar called orthoclase. Now for one of the secrets of the clay. Some of you Club members have won a specimen of Amazonstone for a prize in the Question Box. That beautiful blue-green prize was feldspar, a variety very much like orthoclase. Feldspar when it crumbles and decays becomes clay. So really your lovely Amazonstone prize after all is only clay in a different form.

Another kind of feldspar is albite, a soda feldspar. It has a near relative, as it were, called sodalite. The rich blue variety of sodalite makes a showy specimen in a collection. But finer still is lapis lazuli, another closely related species with sulphur, lime, and other minerals in it.

It also is a lovely blue, and because of its beauty is a favorite in jewelry. There are quite a set of these feldspar relations, and when they are all placed together they make a fine group of specimens, although they are only clay with other names. But most amazing of all the secrets of the clay is that the rich red rubies of the world are made of it—or at least, of the aluminum in it. Strange, indeed, to think that those great glowing gems in the crowns of the world's mighty monarchs are made of clay.

HOW IT BREAKS

In our other Club lessons we have learned that the hardness of minerals and their streak help us very much in identifying them. Now we will let them show us another way to do it. This is a piece of quartz crystal and we will strike it a heavy blow. Notice the shell-like curves where it has broken? That is how quartz breaks.

Now we will strike this calcite crystal. Rhombohedrons, large, medium and small. Only these rhombs will we ever get from perfectly cleaved calcite. Salt gives us only cubes. So with nearly all minerals. Each breaks or crystallizes into its own especial form. Knowing these characteristic forms helps to tell us what mineral it is. How a mineral breaks is called its cleavage.

COLLECTING UNDER DIFFICULTIES

Some of our Club members write that they live in cities, or in flat farming districts where there are practically no opportunities for collecting rocks and minerals. That is surely discouraging— and yet, even under such barren conditions some of our Club group have gained good collections. For the encouragement of us who do not live in good collecting areas they have kindly told us how they did it.

Mr. McKinley, of Illinois, writes (as quoted in part last month), "Illinois in my locality is a flat prairie-like region, with neither igneous nor metamorphic rocks, so it is in gravel pits, creeks and such places that I have been forced to search for specimens. But the glacial deposits have helped, for they brought down many foreign pebbles of all sizes and kinds along the creek beds. Jaspers of many colors I have found there, and when the sun shines after a rainy day they may be easily picked out. Geodes too were there, jasper on the outside, with sparkling quartz crystals inside.

Quite a variety of fossil coral was among my finds, some of it glistening like sugar, and other specimens gray or pink. Hematite and limonite concretions I found in the creek too. Rough quartz of several kinds was one prize, although when found it was not very pleasing in appearance. But when it was polished it was beautiful. Some of the varieties were smoky and milky quartz, carnelian, and agate.

The jaspers are red, brown, orange, yellow-brown, and white. Also I have flesh-pink and red feldspar and white quartz cut and polished into a beautiful specimen. So I keep on searching the creek beds and digging around old glacial deposits, gradually building up my collection. Many of the specimens that I have had cut and polished bring a gasp of admiration from all who see them.

In another letter I will tell you about how I have exchanged my specimens for those of other places. My collection now numbers one thousand and one specimens.

Mineralogically yours,

WILLIAM McKINLEY.

From a town in New York state Nellie Olson writes in substance:

"My collection of rocks and minerals began when I was convalescing from an illness. There was a limestone quarry on the edge of town where for a pass-time I used to gather quartz crystals. Then someone told me the

crystals could be sold to jewelers and museums, and exchanged with mineral collectors for specimens not found in my vicinity.

All this proved to be true, and before long I had nearly one hundred different kinds of rocks and minerals in my collection. Among them was a garnet gem from Africa, and another from Sweden, an amethyst from Brazil, lapis lazuli and tiger-eye originally from China. Quite a good record when all I had to sell or exchange came from just one collecting spot, that limestone quarry."

Another Club member, Girard Gallagher, writes that since he lives in a city, he began exchanging the gems from old pieces of jewelry given him by the various members of his family, for specimens from other collectors. Garnets from an old brooch were as bright and richly red as when first cut. Two polished bloodstones, and tiger-eye, some cut rock crystal, turquoise, amethyst and other semi-precious gems from oldtime pins and chains brought long desired specimens in exchange.

Now he has a fine collection of gems and gem materials, as well as rocks and minerals. Lapis lazuli and real jade from China, a staurolite ("cross stone") from Virginia, a piece of bright red lava from Hawaii, and many other rare and interesting specimens are among the treasures in his collection.

A TRICKY SPECIMEN

So many minerals have strange and unexpected habits. Labradorite is one of them. At first glance it seems to be just a plain unattactive gray and black stone. If not acquainted with it, one is apt to turn it around a few times in looking it over, and then throw it away as wholly uninteresting.

Perhaps only then that gray and black stone comes to life, as it were. Held at a certain angle it fairly glows with shimmering colors, peacock blue and purple, shiny gold and green, copper and bronze. Its secret is that within it are many minute fractures and crystal faces which reflect the light in all these glowing metallic colors. Its name was given to it because it was first discovered in Labrador. Mineralogically it is a member of that numerous family of feldspars.

AN EXHANGE LIST

The following members wish to exchange letters or specimens with other members of Our Junior Club.

Paul Zimmer, 2221 Maple Avenue, Toledo, Ohio, has a large number of fine fossils and minerals to exchange with our Club members.

Girard Gallagher, 379 New York Avenue, Jersey City, New Jersey, who is including cut gems and gem materials in his collection, also wishes to exchange specimens of all kinds with other Club members.

Nellie Olson, 41 East Avenue, Saratoga Springs, New York, is another member who is making a gem collection and who wishes to exchange crystals and other minerals with the Club members.

Victor Croley, Sanator, South Dakota, has some fine mineral specimens collected from a nearby mine, to exchange with members who have specimens from other localities.

Pat O'Lane, 3859 West 22nd Avenue, Vancouver, B. C., Canada, wishes to correspond with the other Club members. Some exceedingly interesting letters have come to us at headquarters from this Canadian member of our Club.

THE QUESTION BOX

1. What is the cleavage form of feldspar?
2. What is the shape and appearance of a diamond as nature leaves it, before man cuts and polishes it into a beautiful gem?
3. What are the crystals that nature makes into beautiful designs so that man does not need to cut and polish them to bring out their beauty?
4. What are the principal minerals in clay?
5. How is clay used on our dining tables?
6. With what other substance are minerals compared to find their weight?

PRIZES

A first class prize will be given for the correct answers to all the questions in the Question Box.

A second class prize will be given for the correct answers to any four of the questions.

A third class prize will be given for the correct answers to any three of the questions.

If you will state on your answer paper what minerals you would like as prizes, if you win any, we will be glad to send them to you if they are in the box of prizes. We are always interested in helping in any way that we can with your collections.

Send your answers by May 15 to Our Junior Club, Rocks and Minerals, Peekskill, New York.

JANUARY PRIZE WINNERS

Eleanor Courtright, of Illinois, won as a first class prize a specimen of salmon calcite. Adele Bartz, New York, won some rubellite. Barbara Bond, Massachusetts, quartz crystals. Kenneth Clewett, California, amber inclosing a fossil insect. Louise Carroll, Massachusetts, a geode. Barbara Partridge, Massachusetts, quartz crystals. Ruth Schuh, Massachusetts, a geode.

The following Second Class prizes were won by E. Lucille Stevens, New York, rose quartz. Warren Johansson, Massachusetts, a geode. Victor Croley, South Dakota, brown tourmaline crystal. Margaret Dudziak, New York, rubellite. Mildred King, Texas, azurite. Esther Hartwell, South Dakota, a geode. Nellie Olsen, New York, aquamarine. Doris Russell Penn., wulfenite. Ann Wrightington, Massachusetts, azurite. Paul Zimmer, Ohio, sphalerite. From a South Dakota mineral club the following members received, Fred Fejfer, orpiment. Robert Mulloney, chrysocolla. Erling Pedersen, salmon calcite. Fred Wolf, Amazonstone. Oscar Dittman, jasper. Roy Robinson, turquoise. Martin Henderson, opal. Floyd Kelley, pitchstone. Francis Meyers, blue calcite. Willard Heiserman, azurite. Ema Hansen, chrysocolla. Helen Morrison, aurichalcite. Maude Slater, chrysocolla. Beulah Whitney, fossils. Bernice Winegar, rubellite. Girard Gallagher, New Jersey, blue halite. Paul Brown, California, malachite. Eugene Goldsby, Washington, quartz crystals. Ruth Styer, New York, azurite. Doris Moore, New York, rubellite. Currie McCabe, Massachusetts, rose quartz. Mildred Kitson, Massachusetts, chrysocolla. Richard Hartshorn, Massachusetts, chrysocolla. David Wheeler, Vermont, chrysocolla. Charles Waters, New York, obsidian. Pat O'Lane, Canada, a geode. Eagan O'Lane, a floating stone.

Third Class prizes were won by George Blackman Massachusetts, floating stone. Arthur Blackman, a geode, Abert Kidwell, Missouri, chrysocolla.

Club and Society Notes

BRANNER GEOLOGICAL CLUB

The Annual Meeting of the Branner Geological Club was held Friday, Jan. 12 at the California Institute of Technology, Pasadena, Calif. The afternoon session presented the following speakers and subjects. "The Occurrence of Amber in California," by Dr. Joseph Murdock, University of California at Los Angeles. "Terrace Levels in the Ventura District" by William C. Putnam, Los Angeles Junior College, "The Origin and Significance of Red Beds in the Pleistocene of Southern California" by Rollin P. Eckis, California State Division of Water Resources.

The evening banquet was held in the Hall of the Associates, Athenaeum, which is the campus home of Cal-Teck faculty members. Following the dinner the evening program continued with "A Description of Some Geologic Features of the Santa Maria Oil Field" by H. W. Hoots of the Union Oil Co. "Geology's First Golden Age, 1785-1833," by Dr. A. O. Woodford, Pomona College. "Recent Geologic History of Holland and Its Human Influence" by M. G. Edwards, Shell Oil Co.

The Branner Geological Club meets once a month at various cities in Southern California and anyone interested in mineralogy, geology, and paleontology may join. Further information may be obtained from Dr. John Maxson, California Institute of Technology, Pasadena, Calif.

Mineralogical Society of Southern California

The Mineralogical Society of Southern California met at the Pasadena Public Library on March 12th with about 300 members and friends present. The guest speaker of the evening was Dr. Frederick C. Leonard, Chairman of the Department of Astronomy of the University of California (Los Angeles branch) who gave a most interesting lecture—"Visitors from Cosmic Space"—illustrated with lantern slides. Dr. Leonard is President of the recently organized Society for Research on Meteorites and anyone interested in joining the new Society are cordially invited to communicate with him.

The March field trip was taken to Rosamond where deposits of jasper, chalcedony, and petrified wood occur. Stops were made at Mint Canyon for collecting chalcedony nodules, which take an excellent polish, and quartz geodes.

WENDELL O. STEWART.

New Haven Mineral Club

The regular meeting of the New Haven Mineral Club was held in the East Rock Park Club House on Feb. 19th. The speakers of the evening were Dr. J. R. Herman and Mr. Leon Glouskin who described an extensive trip taken by them through the Yellowstone National Park in Wyoming. These talks were most interesting and thoroughly enjoyed by those present.

Mrs. Lillian Otersen loaned the Club some beautiful specimens of barite, calcite, galena, marcasite and quartz crystals which are to be placed on exhibition for an indefinite period The specimens were greately admired by all who saw them.

The Club, although newly formed, is growing nicely and being composed of collectors keenly interested in minerals, a number of field trips and other activities are planned for the coming months. Membership in the Club is opened to anyone interested in minerals. For further information, apply to W. H. Otersen, 16 Grove Pace, West Haven, Conn., or to Frank Wilson, Pratts Corner, West Cheshire, Conn.

Philadelphia Mineralogical Society

President Gillson called to order the stated meeting of the Philadelphia Mineralogical Society, 38 members and 27 visitors being present. Prof. Paul F. Kerr of Columbia University addressed the Society on the "Mill City, Nevada, Tungsten Deposits."

Prospecting for commercial Tungsten deposits was greatly encouraged during the War and some 25 prospects were located in the 300 odd Mountain ranges of Nevada. The principal ores are Scheelite and Huebnerite. Mill City in the Eugene Range is the largest producing center in the United States at present, the annual production being 1,000 tons of concentrates. These 300 odd Mountain ranges represent different mineralized Fault Blocks, and the Eugene Range yields Mercury, Molybdenum, Silver, Tungsten and Gold. Mill City, Silver Dike , and Paradise Range represent three different types of Tungsten deposits, and the Betty O'Neal Mine in the Paradise Range is estimated to contain 5,000,000 tons of Brucite, in which are located pockets of Scheelite. Three important mines are located at Mill City; the Humboldt, Springer and Stank, which represent a concentration of Tungsten in a vein-like deposit 6 to 8 feet wide and 800 feet deep. The rocks are Triassic in age and younger. Quartz, Garnet, Calcite and Epidote are associated with the Scheelite. The deposit is a typical contact metamorphic deposit. Owing to the great similarity of the appearance of the Scheelite and the associated Quartz, Iron arcs have recently been installed above and below ground for determining the Scheelite by Fluorescence.

Prof. Kerr's talk was splendidly illustrated with lantern slides. The Society gave him a rising vote of thanks for his fine talk.

Miss E. Alva Campbell, President of the Frankford Mineralogical Society, announced that Mr. Chas. R. Toothaker would address the next meeting of the Society, Monday Evening, March 26.

President Gillson announced that the Society would participate in the Rocks and Minerals Association National Outing to be held Sunday, May 20, details to be announced later. He further asked the feeling of the members as to their willingness to support an exhibition of their specimens at the Academy, similar to former annual exhibitions by the members of the Society.

W. H. FLACK, Secretary.

READERS' SECTION

Too Much Clubs and Associations

Editor "R. & M.":

As you know, I have been a subscriber to ROCKS and MINERALS since its inception and have spoken about it to a number of my friends. I value it very highly.

I want to congratulate you at this time upon changing it to a monthly. May I be permitted to give you a suggestion? It is this:

Please do not let the club and society notes and the accounts of various organizations interested in minerals throughout the country take up too much space. I value, as you do, these clubs and associations for the encouragement of interest in minerals. However, I have had much to do with scientific periodicals in my life and I do not want to see the quality of ROCKS and MINERALS decline by having too much of these notices.

One of my chief regrets in living in this section of the United States is that I have so little opportunity around here for any collecting. However, each summer I plan to get some additions to my collection. Many of us here at the University are called upon to make talks from time to time and the one that gives me most pleasure is to take several suit cases full of my minerals and semi-precious stones and use them as the basis for a talk.

R. NORRIS SHREVE.

Lafayette, Ind.

It Pays To Advertise

Editor "R. & M.":

Talk about advertising! Does it pay? I'll say it does. My Exchange advertisement in ROCKS and MINERALS has kept me busy sending out minerals and in a few months time I have built up a cabinet full of select mineral specimens. I've had calls for all kinds of materials. One fellow even wanted me to furnish "gallstones" but I didn't have time to hang around a hospital for some one to be operated on.

KARL PROCTOR PERRY

Hartford Conn.

We Agree With You

Editor "R. & M.":

A "standard catalog on mineral specimens" such as Mr. Grieger suggested in the January Number seems to me the most important step forward in popularizing mineralogy. We have only to consider the hobby of stamp collecting to realize how important a standard catalog may be. Recent estimates by Postal Department officials give the number of stamp collectors in the United States as 9,000,000. Without a standard catalog, philately could never have developed to such proportions.

Mineralogy, likewise, can never hope to grow in the manner it deserves until such a standard catalog is issued to give the average collector a basis on which to estimate the value of his material for sale or exchange purposes and to enable him to buy wisely.

Mr. English, writing in the February issue, is quite correct in stating that values are determined by the law of supply and demand. But there should be no great problem or difficulty in discovering these values. Obviously, the persons to prepare such a catalog are the agents who can supply the minerals listed. They alone can know the price at which they can profitably buy and sell mineral specimens.

If such dealers as Mr. Grieger, himself, Stephen Varni, George O. Wild, Ward's Natural Science Est., etc., can be persuaded to co-operate in preparing a standard catalog, they will perform a very worthwhile and important service for our hobby.

Sanator, S.D. VICTOR CROLEY

The National Outing

Plans are well under way for the second annual Rocks and Mineral National Outing which will be held on May 20th. The 17 field trips held last year aroused so much interest that it is our earnest desire to have directors to represent all sections of the country. When this is accomplished everyone will have an opportunity to attend.

The May issue will contain the list of all outings to be held and the directors.